

SEQUENCE LISTING

<110> WANG, LI
BABIUK, LORNE A.
POTTER, ANDREW A.
WILLSON, PHILIP

<120> POSTWEANING MULTISYSTEM WASTING SYNDROME VIRUS FROM
PIGS

<130> 9000-0040

<140> 09/209,961

<141> 1998-12-10

<150> 60/069,233

<151> 1997-12-11

<150> 60/069,750

<151> 1997-12-16

<160> 24

<170> PatentIn Ver. 2.0

<210> 1

<211> 1768

<212> DNA

<213> Porcine Circovirus Type II

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<210> 2

<211> 1759

<212> DNA

<213> Porcine Circovirus Type I

<400> 2

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<210> 3

<211> 314

<212> PRT

<213> Porcine Circovirus Type II

<400> 3

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Arg	Glu	Leu	Pro	Ile	Ser	Leu	Phe	Asp	Tyr	Phe	Ile	Val	Gly	Glu	Glu	
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Gly	Asn	Glu	Glu	Gly	Arg	Thr	Pro	His	Leu	Gln	Gly	Phe	Ala	Asn	Phe	
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Val	Lys	Lys	Gln	Thr	Phe	Asn	Lys	Val	Lys	Trp	Tyr	Leu	Gly	Ala	Arg	
	65				70					75					80	
Cys	His	Ile	Glu	Lys	Ala	Lys	Gly	Thr	Asp	Gln	Gln	Asn	Lys	Glu	Tyr	
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Cys	Ser	Lys	Glu	Gly	Asn	Leu	Leu	Ile	Glu	Cys	Gly	Ala	Pro	Arg	Ser	
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Gln	Gly	Gln	Arg	Ser	Asp	Leu	Ser	Thr	Ala	Val	Ser	Thr	Leu	Leu	Glu	
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Ser	Gly	Ile	Leu	Val	Thr	Val	Ala	Glu	Gln	His	Pro	Val	Thr	Phe	Val	
	130					135					140					
Lys	Asn	Phe	Arg	Gly	Leu	Ala	Glu	Leu	Leu	Lys	Val	Ser	Gly	Lys	Met	
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Gln	Lys	Arg	Asp	Trp	Lys	Thr	Asn	Val	His	Phe	Ile	Val	Gly	Pro	Pro	
				165					170					175		
Gly	Cys	Gly	Lys	Ser	Lys	Trp	Ala	Ala	Asn	Phe	Ala	Asn	Pro	Glu	Thr	
			180					185					190			
Thr	Tyr	Trp	Lys	Pro	Pro	Lys	Asn	Lys	Trp	Trp	Asp	Gly	Tyr	His	Gly	
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Asp	Leu	Leu	Arg	Leu	Cys	Asp	Arg	Tyr	Pro	Leu	Thr	Val	Lys	Thr	Lys	
225					230					235					240	
Gly	Gly	Thr	Val	Pro	Phe	Leu	Ala	Arg	Ser	Ile	Leu	Ile	Thr	Ser	Asn	
				245					250					255		
Gln	Thr	Pro	Leu	Glu	Trp	Tyr	Ser	Ser	Thr	Ala	Val	Pro	Ala	Val	Glu	
				260				265					270			
Ala	Leu	Tyr	Arg	Arg	Ile	Thr	Ser	Leu	Val	Phe	Trp	Lys	Asn	Ala	Thr	
		275					280					285				
Lys	Gln	Ser	Thr	Glu	Glu	Gly	Gly	Gln	Phe	Val	Thr	Leu	Ser	Pro	Pro	
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AI
Unit

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305 310

<210> 4

<211> 312

<212> PRT

<213> Porcine Circovirus Type I

<400> 4

Met Pro Ser Lys Lys Ser Gly Pro Gln Pro His Lys Arg Trp Val Phe
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Thr Leu Asn Asn Pro Ser Glu Glu Glu Lys Asn Lys Ile Arg Glu Leu
20 25 30

Pro Ile Ser Leu Phe Asp Tyr Phe Val Cys Gly Glu Glu Gly Leu Glu
35 40 45

Glu Gly Arg Thr Pro His Leu Gln Gly Phe Ala Asn Phe Ala Lys Lys
50 55 60

Gln Thr Phe Asn Lys Val Lys Trp Tyr Phe Gly Ala Arg Cys His Ile
65 70 75 80

Glu Lys Ala Lys Gly Thr Asp Gln Gln Asn Lys Glu Tyr Cys Ser Lys
85 90 95

Glu Gly His Ile Leu Ile Glu Cys Gly Ala Pro Arg Asn Gln Gly Lys
100 105 110

Arg Ser Asp Leu Ser Thr Ala Val Ser Thr Leu Leu Glu Thr Gly Ser
115 120 125

Leu Val Thr Val Ala Glu Gln Phe Pro Val Thr Tyr Val Arg Asn Phe
130 135 140

Arg Gly Leu Ala Glu Leu Leu Lys Val Ser Gly Lys Met Gln Gln Arg
145 150 155 160

Asp Trp Lys Thr Ala Val His Val Ile Val Gly Pro Pro Gly Cys Gly
165 170 175

Lys Ser Gln Trp Ala Arg Asn Phe Ala Glu Pro Arg Asp Thr Tyr Trp
180 185 190

Lys Pro Ser Arg Asn Lys Trp Trp Asp Gly Tyr His Gly Glu Glu Val
195 200 205

Val Val Leu Asp Asp Phe Tyr Gly Trp Leu Pro Trp Asp Asp Leu Leu
210 215 220

Arg Leu Cys Asp Arg Tyr Pro Leu Thr Val Glu Thr Lys Gly Gly Thr
225 230 235 240

Val Pro Phe Leu Ala Arg Ser Ile Leu Ile Thr Ser Asn Gln Ala Pro
245 250 255

Gln Glu Trp Tyr Ser Ser Thr Ala Val Pro Ala Val Glu Ala Leu Tyr
260 265 270

Arg Arg Ile Thr Thr Leu Gln Phe Trp Lys Thr Ala Gly Glu Gln Ser
275 280 285

Thr Glu Val Pro Glu Gly Arg Phe Glu Ala Val Asp Pro Pro Cys Ala
290 295 300

Leu Phe Pro Tyr Lys Ile Asn Tyr
305 310

<210> 5
<211> 233
<212> PRT
<213> Porcine Circovirus Type II

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Ser His Leu Gly Gln Ile Leu Arg Arg Arg Pro Trp Leu Val His Pro
20 25 30

Arg His Arg Tyr Arg Trp Arg Arg Lys Asn Gly Ile Phe Asn Thr Arg
35 40 45

Leu Ser Arg Thr Phe Gly Tyr Thr Val Lys Arg Thr Thr Val Thr Thr
50 55 60

Pro Ser Trp Ala Val Asp Met Met Arg Phe Lys Ile Asp Asp Phe Val
65 70 75 80

Pro Pro Gly Gly Gly Thr Asn Lys Ile Ser Ile Pro Phe Glu Tyr Tyr
85 90 95

Arg Ile Arg Lys Val Lys Val Glu Phe Trp Pro Cys Ser Pro Ile Thr
100 105 110

Gln Gly Asp Arg Gly Val Gly Ser Thr Ala Val Ile Leu Asp Asp Asn
115 120 125

Phe Val Thr Lys Ala Thr Ala Leu Thr Tyr Asp Pro Tyr Val Asn Tyr
130 135 140

Ser Ser Arg His Thr Ile Pro Gln Pro Phe Ser Tyr His Ser Arg Tyr
145 150 155 160

Phe Thr Pro Lys Pro Val Leu Asp Ser Thr Ile Asp Tyr Phe Gln Pro
165 170 175

Asn Asn Lys Arg Asn Gln Leu Trp Leu Arg Leu Gln Thr Ser Gly Asn
180 185 190

Val Asp His Val Gly Leu Gly Thr Ala Phe Glu Asn Ser Lys Tyr Asp
195 200 205

Gln Asp Tyr Asn Ile Arg Val Thr Met Tyr Val Gln Phe Arg Glu Phe
210 215 220

Asn Leu Lys Asp Pro Pro Leu Glu Pro
225 230

<210> 6

<211> 233

<212> PRT

<213> Porcine Circovirus Type I

<400> 6

Met Thr Trp Pro Arg Arg Arg Tyr Arg Arg Arg Thr Arg Pro Arg
1 5 10 15

Ser His Leu Gly Asn Ile Leu Arg Arg Arg Pro Tyr Leu Ala His Pro
20 25 30

Ala Phe Arg Asn Arg Tyr Arg Trp Arg Arg Lys Thr Gly Ile Phe Asn
35 40 45

Ser Arg Leu Ser Thr Glu Phe Val Leu Thr Ile Lys Gly Gly Tyr Ser
50 55 60

Gln Pro Ser Trp Asn Val Asn Tyr Leu Lys Phe Asn Ile Gly Gln Phe
65 70 75 80

Leu Pro Pro Ser Gly Gly Thr Asn Pro Leu Pro Leu Pro Phe Gln Tyr
85 90 95

Tyr Arg Ile Arg Lys Ala Lys Tyr Glu Phe Tyr Pro Arg Asp Pro Ile
100 105 110

Thr Ser Asn Gln Arg Gly Val Gly Ser Thr Val Val Ile Leu Asp Ala
115 120 125

Asn Phe Val Thr Pro Ser Thr Asn Leu Ala Tyr Asp Pro Tyr Ile Asn
130 135 140

Tyr Ser Ser Arg His Thr Ile Arg Gln Pro Phe Thr Tyr His Ser Arg
145 150 155 160

Tyr Phe Thr Pro Lys Pro Glu Leu Asp Gln Thr Ile Asp Trp Phe His
165 170 175

Pro Asn Asn Lys Arg Asn Gln Leu Trp Leu His Leu Asn Thr His Thr
180 185 190

Asn Val Glu His Thr Gly Leu Gly Tyr Ala Leu Gln Asn Ala Ala Thr
195 200 205

Ala Gln Asn Tyr Val Val Arg Leu Thr Ile Tyr Val Gln Phe Arg Glu
210 215 220

Phe Ile Leu Lys Asp Pro Leu Asn Lys
225 230

<210> 7

<211> 59

<212> PRT

<213> Porcine Circovirus Type II

<400> 7

Met Lys Cys Thr Leu Val Phe Gln Ser Arg Phe Cys Ile Phe Pro Leu
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Thr Phe Lys Ser Ser Ala Ser Pro Arg Lys Phe Leu Thr Asn Val Thr
20 25 30

Gly Cys Cys Phe Ala Thr Val Thr Arg Ile Pro Leu Ser Asn Lys Val
35 40 45

Leu Thr Ala Val Asp Arg Ser Leu Arg Cys Pro
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<210> 8

<211> 115

<212> PRT

<213> Porcine Circovirus Type I

<400> 8

Met Thr Cys Thr Ala Val Phe Gln Ser Arg Cys Cys Ile Phe Pro Leu
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Thr Phe Lys Ser Ser Ala Ser Pro Arg Lys Phe Leu Thr Tyr Val Thr
20 25 30

Gly Asn Cys Ser Ala Thr Val Thr Lys Asp Pro Val Ser Lys Arg Val
35 40 45

Leu Thr Ala Val Asp Arg Ser Leu Arg Phe Pro Trp Phe Arg Gly Ala
50 55 60

Pro His Ser Ile Ser Met Trp Pro Ser Leu Leu Gln Tyr Ser Leu Phe
65 70 75 80

Cys Trp Ser Val Pro Phe Ala Phe Ser Met Trp Gln Arg Ala Pro Lys
85 90 95

Tyr His Phe Thr Leu Leu Lys Val Cys Phe Leu Ala Lys Phe Ala Asn
100 105 110

Pro Trp Arg
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<210> 9
<211> 104
<212> PRT
<213> Porcine Circovirus Type II

<400> 9
Met Val Thr Ile Pro Pro Leu Val Phe Arg Trp Phe Pro Val Cys Gly
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Phe Arg Val Cys Lys Ile Ser Ser Pro Phe Ala Phe Thr Thr Pro Arg
20 25 30

Trp Pro His Asn Glu Val Tyr Ile Gly Phe Pro Ile Thr Leu Leu His
35 40 45

Phe Pro Ala His Phe Gln Lys Phe Ser Gln Pro Ala Glu Ile Phe Asp
50 55 60

Lys Arg Tyr Arg Val Leu Leu Cys Asn Gly His Gln Asn Pro Ala Leu
65 70 75 80

Gln Gln Gly Thr His Ser Ser Arg Gln Val Thr Pro Leu Ser Leu Arg
85 90 95

Ser Arg Ser Ser Thr Phe Asn Lys
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<210> 10
<211> 206
<212> PRT
<213> Porcine Circovirus Type I

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Met Ile Ser Ile Pro Pro Leu Ile Ser Thr Arg Leu Pro Val Gly Val
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Pro Arg Leu Ser Lys Ile Thr Gly Pro Leu Ala Leu Pro Thr Thr Gly
20 25 30

Arg Ala His Tyr Asp Val Tyr Ser Cys Leu Pro Ile Thr Leu Leu His
35 40 45

Leu Pro Ala His Phe Gln Lys Phe Ser Gln Pro Ala Glu Ile Ser His
50 55 60

Ile Arg Tyr Arg Glu Leu Leu Gly Tyr Ser His Gln Arg Pro Arg Leu
 65 70 75 80
 Gln Lys Gly Thr His Ser Ser Arg Gln Val Ala Ala Leu Pro Leu Val
 85 90 95
 Pro Arg Ser Ser Thr Leu Asp Lys Tyr Val Ala Phe Phe Thr Ala Val
 100 105 110
 Phe Phe Ile Leu Leu Val Gly Ser Phe Arg Phe Leu Asp Val Ala Ala
 115 120 125
 Gly Thr Lys Ile Pro Leu His Leu Val Lys Ser Leu Leu Leu Ser Lys
 130 135 140
 Ile Arg Lys Pro Leu Glu Val Arg Ser Ser Thr Leu Phe Gln Thr Phe
 145 150 155 160
 Leu Ser Ala Asn Lys Ile Ile Lys Lys Gly Asp Trp Lys Leu Pro Tyr
 165 170 175
 Phe Val Phe Leu Leu Leu Gly Arg Ile Ile Lys Gly Glu His Pro Pro
 180 185 190
 Leu Met Gly Leu Arg Ala Ala Phe Leu Ala Trp His Phe His
 195 200 205

<210> 11
 <211> 1768
 <212> DNA
 <213> Porcine Circovirus Type II

<400> 11
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<210> 12

<211> 240

<212> DNA

<213> Porcine Circovirus Type II

<400> 12

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 cttccgaaga caagcgaag aaaatacggg agtcccaat ctccctattt gattatttta 180
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<210> 13

<211> 18

<212> DNA

<213> Artificial Sequence.

<220>

<223> Description of Artificial Sequence: Loop primer

<400> 13

actacagcag cgcacttc 18

<210> 14

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: 1000(-) primer

<400> 14

aaaaaagact cagtaattta tttcatatgg 30

<210> 15

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: RIF(-) primer

<400> 15

atcacttcgt aatggttttt att 23

<210> 16
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: 1710(+) primer

<400> 16
tgcggtaacg cctccttg 18

<210> 17
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: 850(-) primer

<400> 17
ctacagctgg gacagcagtt g 21

<210> 18
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: 1100(+) primer

<400> 18
catacatggg tacacggata ttg 23

AI
ent
<210> 19
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: 1570(-) primer

<400> 19
ccgcaccttc ggatatactg 20

<210> 20
<211> 59
<212> PRT
<213> Porcine Circovirus Type II

<400> 20
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Leu Leu Ile Leu Gln Thr Arg Lys Pro His Thr Gly Asn His Leu Lys
20 25 30

Thr Ser Gly Gly Met Val Thr Met Val Lys Lys Trp Leu Leu Leu Met
35 40 45

Thr Phe Met Ala Gly Cys Arg Gly Met Ile Tyr
50 55

<210> 21
<211> 53
<212> PRT
<213> Porcine Circovirus Type II

<400> 21
Met Val Phe Ile Ile His Leu Gly Phe Lys Trp Gly Val Phe Lys Ile
1 5 10 15

Lys Phe Ser Glu Leu Tyr Ile His Gly Tyr Thr Asp Ile Val Val Leu
20 25 30

Val Val Phe Thr Val Phe Glu Arg Ser Ala Glu Ala Tyr Val Val His
35 40 45

Ile Ser Arg Gly Leu
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<210> 22
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: 1230(-) primer

<400> 22
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20

<210> 23
<211> 20
<212> DNA
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4/1
Cmt